

CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Botulinum Toxin for Treating Primary Focal Hyperhidrosis in Adult Patients: Clinical Effectiveness

Service Line: Rapid Response Service
Version: 1.0
Publication Date: June 30, 2020
Report Length: 6 Pages

Authors: Christopher Freige, Suzanne McCormack

Cite As: *Botulinum Toxin for Treating Primary Focal Hyperhidrosis in Adult Patients: Clinical Effectiveness*. Ottawa: CADTH; 2020 Jun. (CADTH rapid response report: summary of abstracts).

Disclaimer: The information in this document is intended to help Canadian health care decision-makers, health care professionals, health systems leaders, and policy-makers make well-informed decisions and thereby improve the quality of health care services. While patients and others may access this document, the document is made available for informational purposes only and no representations or warranties are made with respect to its fitness for any particular purpose. The information in this document should not be used as a substitute for professional medical advice or as a substitute for the application of clinical judgment in respect of the care of a particular patient or other professional judgment in any decision-making process. The Canadian Agency for Drugs and Technologies in Health (CADTH) does not endorse any information, drugs, therapies, treatments, products, processes, or services.

While care has been taken to ensure that the information prepared by CADTH in this document is accurate, complete, and up-to-date as at the applicable date the material was first published by CADTH, CADTH does not make any guarantees to that effect. CADTH does not guarantee and is not responsible for the quality, currency, propriety, accuracy, or reasonableness of any statements, information, or conclusions contained in any third-party materials used in preparing this document. The views and opinions of third parties published in this document do not necessarily state or reflect those of CADTH.

CADTH is not responsible for any errors, omissions, injury, loss, or damage arising from or relating to the use (or misuse) of any information, statements, or conclusions contained in or implied by the contents of this document or any of the source materials.

This document may contain links to third-party websites. CADTH does not have control over the content of such sites. Use of third-party sites is governed by the third-party website owners' own terms and conditions set out for such sites. CADTH does not make any guarantee with respect to any information contained on such third-party sites and CADTH is not responsible for any injury, loss, or damage suffered as a result of using such third-party sites. CADTH has no responsibility for the collection, use, and disclosure of personal information by third-party sites.

Subject to the aforementioned limitations, the views expressed herein do not necessarily reflect the views of Health Canada, Canada's provincial or territorial governments, other CADTH funders, or any third-party supplier of information.

This document is prepared and intended for use in the context of the Canadian health care system. The use of this document outside of Canada is done so at the user's own risk.

This disclaimer and any questions or matters of any nature arising from or relating to the content or use (or misuse) of this document will be governed by and interpreted in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein, and all proceedings shall be subject to the exclusive jurisdiction of the courts of the Province of Ontario, Canada.

The copyright and other intellectual property rights in this document are owned by CADTH and its licensors. These rights are protected by the Canadian *Copyright Act* and other national and international laws and agreements. Users are permitted to make copies of this document for non-commercial purposes only, provided it is not modified when reproduced and appropriate credit is given to CADTH and its licensors.

About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

Funding: CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

Questions or requests for information about this report can be directed to requests@cadth.ca

Research Question

What is the clinical effectiveness of botulinum toxin for treating primary focal hyperhidrosis in adult patients?

Key Findings

One health technology assessment, one randomized controlled trial, and one non-randomized study were identified regarding the clinical effectiveness of botulinum toxin for treating primary focal hyperhidrosis in adult patients.

Methods

A limited literature search was conducted by an information specialist on key resources including Medline, Embase, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were botulinum and hyperhidrosis. No search filters were applied to limit retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2015 and June 16, 2020. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Populations	Adult patients (18 years or older) with primary focal hyperhidrosis (e.g., axillary, planar, plantar) or compensatory hyperhidrosis post-sympathectomy Exclude: night sweats, menopausal hot flashes
Intervention	Botulinum toxin (any formulation)
Comparators	Anticholinergics (e.g., glycopyrrolate), antidepressants, placebo
Outcomes	Clinical effectiveness (e.g., impact on level of sweat/perspiration, quality of life including the effect on patient's ability to work) and safety (e.g., adverse drug reaction)
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies

Results

One health technology assessment,¹ one randomized controlled trial,² and one non-randomized study³ were identified regarding the clinical effectiveness of botulinum toxin for treating primary focal hyperhidrosis in adult patients. No systematic reviews were identified. Furthermore, no studies focusing on the working adult population were identified.

Additional references of potential interest that did not meet the inclusion criteria are provided in the appendix.

Overall Summary of Findings

One health technology assessment,¹ one randomized controlled trial,² and one non-randomized study³ were identified regarding the clinical effectiveness of botulinum toxin for treating primary focal hyperhidrosis in adult patients. The health technology assessment by Wade et al.¹ aimed to determine the most effective treatments for refractory primary hyperhidrosis in secondary care. Overall, the authors concluded that there was moderate quality evidence that botulinum toxin injections, compared to placebo, had a statistically significant effect on axillary hyperhidrosis symptoms.¹ The randomized controlled trial by Lueangarun et al.² aimed to evaluate the efficacy and safety of a topical botulinum toxin A liposomal cream in patients with primary axillary hyperhidrosis. Compared to the liposomal vehicle cream alone, topical botulinum toxin A liposomal cream significantly improved sweat reduction and patient satisfaction outcomes.² Lastly, the non-randomized study by Baker et al.³ compared the initial effectiveness of botulinum toxin A injections, 1% topical glycopyrrolate and 2% topical glycopyrrolate in patients with axillary hyperhidrosis. Overall, there was a significant improvement in treatment outcomes with botulinum toxin A compared to 1% glycopyrrolate spray, but no difference in treatment outcomes between botulinum toxin A and 2% glycopyrrolate spray.³

References Summarized

Health Technology Assessment

1. Wade R, Rice S, Llewellyn A, et al. Interventions for hyperhidrosis in secondary care: a systematic review and value-of-information analysis. *Health Technology Assessment (Winchester, England)*. 2017 12;21(80):1-280.
[PubMed: PM29271741](#)

Systematic Reviews and Meta-Analyses

No literature identified.

Randomized Controlled Trial

2. Lueangarun S, Semsilp C, Tempark T. Topical Botulinum Toxin Type A Liposomal Cream for Primary Axillary Hyperhidrosis: A Double-Blind, Randomized, Split-Site, Vehicle-Controlled Study. *Dermatol Surg*. 2018 08;44(8):1094-1101.
[PubMed: PM29659406](#)

Non-Randomized Study

3. Baker DM. Topical glycopyrrolate reduces axillary hyperhidrosis. *J Eur Acad Dermatol Venereol*. 2016 Dec;30(12):2131-2136.
[PubMed: PM27406319](#)

Appendix — Further Information

Systematic Reviews and Meta-Analyses – Unclear Comparators

4. Wade R, Llewellyn A, Jones-Diette J, et al. Interventional management of hyperhidrosis in secondary care: a systematic review. *Br J Dermatol*. 2018 09;179(3):599-608.
[PubMed: PM29573391](#)
5. Nicholas R, Quddus A, Baker DM. Treatment of Primary Craniofacial Hyperhidrosis: A Systematic Review. *Am J Clin Dermatol*. 2015 Oct;16(5):361-370.
[PubMed: PM26055729](#)

Randomized Controlled Trial – Unclear Population

6. Cabreus P, Swartling C, Rystedt A. Postmenopausal craniofacial hyperhidrosis treated with botulinum toxin type B. *J Dermatol*. 2019 Oct;46(10):874-878.
[PubMed: PM31373068](#)

Non-Randomized Studies

Mixed Population

7. Wein T, Jog M, Bhogal M, et al. Long-term Safety and Dosing of OnabotulinumtoxinA: A Prospective, Observational Study. *Can J Neurol Sci*. 2019 11;46(6):742-752.
[PubMed: PM31256770](#)

Alternative Population

8. Bernhard MK, Krause M, Syrbe S. Sweaty feet in adolescents—Early use of botulinum type A toxin in juvenile plantar hyperhidrosis. *Pediatr Dermatol*. 2018 Nov;35(6):784-786.
[PubMed: PM30178509](#)
9. Mirkovic SE, Rystedt A, Balling M, Swartling C. Hyperhidrosis Substantially Reduces Quality of Life in Children: A Retrospective Study Describing Symptoms, Consequences and Treatment with Botulinum Toxin. *Acta Derm Venereol*. 2018 Jan 12;98(1):103-107.
[PubMed: PM28761964](#)
10. Glaser DA, Pariser DM, Hebert AA, et al. A Prospective, Nonrandomized, Open-Label Study of the Efficacy and Safety of OnabotulinumtoxinA in Adolescents with Primary Axillary Hyperhidrosis. *Pediatr Dermatol*. 2015 Sep-Oct;32(5):609-617.
[PubMed: PM26059781](#)

Mixed Intervention

11. Karlsson-Groth A, Rystedt A, Swartling C. Treatment of compensatory hyperhidrosis after sympathectomy with botulinum toxin and anticholinergics. *Clin Auton Res*. 2015 Jun;25(3):161-167.
[PubMed: PM25773586](#)

No Comparator

12. Kim HM, Lee MJ, Lee MH, Lee H. Pressure-and dose-controlled, needle-free, transcutaneous pneumatic injection of botulinum neurotoxin-A for the treatment of primary axillary and palmoplantar hyperhidrosis. *Skin Res Technol*. 2020 Jan. [PubMed: PM31922304](#)
13. Lynch OE, Aherne T, Gibbons J, et al. Five-year follow-up of patients treated with intradermal botulinum toxin for axillary hyperhidrosis. *Ir J Med Sci*. 2020 Jan 3. [PubMed: PM31898163](#)
14. Ryan A, Hill S, Sahota A. The use of Entonox as a dissociative anaesthesia during the injection of botulinum toxin for the treatment of palmar/plantar hyperhidrosis and the DLQI outcomes for these patients. *Br J Dermatol*. 2018 July;179 (Supplement 1):125. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/bjd.16546>

Unclear Abstract

15. Rosen R, Stewart T. Results of a 10-year follow-up study of botulinum toxin A therapy for primary axillary hyperhidrosis in Australia. *Intern Med J*. 2018 Mar;48(3):343-347. [PubMed: PM29512329](#)

Review Articles

16. Nawrocki S, Cha J. Botulinum toxin: Pharmacology and injectable administration for the treatment of primary hyperhidrosis. *J Am Acad Dermatol*. 2020 Apr;82(4):969-979. [PubMed: PM31811879](#)
17. Guida S, Farnetani F, Nistico SP, et al. New trends in botulinum toxin use in dermatology. *Dermatol Pract Concept*. 2018 Oct;8(4):277-282. [PubMed: PM30479855](#)